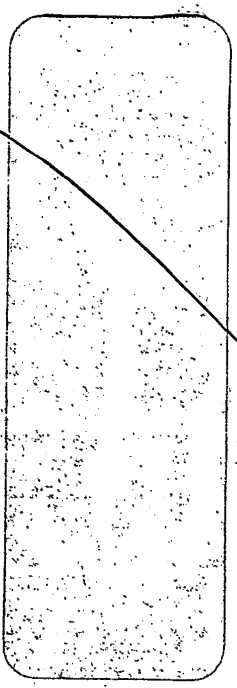


IC3700 RANDOLPH  
Bldg./Room

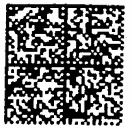
U.S. DEPARTMENT OF COMMERCE  
COMMISSIONER FOR PATENTS  
P.O. BOX 1450  
ALEXANDRIA, VA 22313-1450  
IF UNDELIVERABLE RETURN IN TEN DAYS  
OFFICIAL BUSINESS

AN EQUAL OPPORTUNITY EMPLOYER

UNDELIVERABLE AS  
ADDRESSED  
UNABLE TO FORWARD



RECEIVED  
MAY 03 2005  
USPTO MAIL CENTER



UNITED STATES POSTAGE  
\$00.83  
02 1A  
0004204034  
APR 21 2005  
MAILED FROM ZIP CODE 2231



IFW

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,405	07/15/2004	Masashi Gabe	953.1017	2649

7590 04/21/2005  
Staas & Halsey  
700 Eleventh Street N W  
Suite 500  
Washington, DC 20001

EXAMINER

NGUYEN, TU MINH

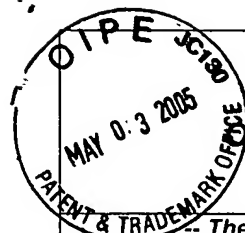
ART UNIT PAPER NUMBER

3748

DATE MAILED: 04/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

RECEIVED  
MAY -3 2005  
OIPE/JCVS



Office Action Summary

Application No.	Applicant(s)	
10/501,405	GABE ET AL.	
Examiner	Art Unit	
Tu M. Nguyen	3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 July 2004.
- 2a) ☐ This action is FINAL.
- 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    - a) ☒ All
    - b) ☐ Some
    - \* c) ☐ None of:
      - 1. ☐ Certified copies of the priority documents have been received.
      - 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
      - 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 071504.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. An Applicant's Preliminary Amendment filed on July 15, 2004 has been entered. Claims 3-5 and 8-10 have been amended. Overall, claims 1-10 are pending in this application.

#### ***Specification***

2. The abstract of the disclosure is objected to because of the use of legal phrase "means" on lines 8-10. Correction is required. See MPEP § 608.01(b).

#### ***Claim Objections***

3. Claims 1 and 6 are objected to because of the following informalities:
  - Claim 1, line 5 of the claim, "capable of" renders the claim indefinite and should be changed to --adapted for--.
  - Claim 6, line 7 of the claim, "capable of" should be changed to --adapted for--.Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 3748

5. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pott (U.S. Patent 6,164,064) in view of Hirota et al. (U.S. Patent 6,233,925).

Re claims 1 and 6, as shown in Figures 1 and 3, Pott discloses an exhaust gas purifying system and a method of exhaust gas purification to be carried out with use of said exhaust gas purifying system provided with a NO<sub>x</sub> occlusion reduction type catalyst (3) in an exhaust passage (2) of an engine (1) and a control unit (not shown but obviously must have) comprising a normal control operation means (normal mode of operation (lines 63-64 of column 1 and lines 26-29 of column 4)), a regeneration control initiation judging means (lines 55-56 of column 1) for detecting a regeneration control initiation timing for the NO<sub>x</sub> occlusion reduction type catalyst, a catalyst activation control operation means (lines 57-60 of column 1), and a rich-burn control operation means (lines 61-62 of column 1) adapted for lowering the concentration of oxygen in exhaust gas, which comprises performing a catalyst activation control operation (lines 57-60 of column 1) by the catalyst activation control operation means when it is judged by the regeneration control initiation judging means (lines 55-56 of column 1) that a regeneration control for the regeneration of the NO<sub>x</sub> occlusion reduction type catalyst is to be initiated and thereafter executing a rich-burn control operation (lines 61-62 of column 1) accompanying a recirculation of EGR gas (lines 17-25 of column 4) by the rich-burn control operation means to thereby regenerate the NO<sub>x</sub> occlusion reduction type catalyst.

Pott, however, fails to disclose that the NO<sub>x</sub> occlusion reduction type catalyst has a catalyst metal and a NO<sub>x</sub> occluding substance.

Art Unit: 3748

As illustrated in Figure 1 and 12, Hirota et al. teach that it is conventional in the art to utilize a NOx occlusion reduction type catalyst (10) having a catalyst metal (noble metal such as platinum) and a NOx occluding substance (alkali-earth metal such as barium) (lines 39-64 of column 4). It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the NOx occlusion reduction type catalyst taught by Hirota et al. in the system and method of Pott, since the use thereof would have been routinely practiced by those with ordinary skill in the art.

Re claims 2 and 7, the modified system and method of Pott comprise performing a burning control operation in the nearly stoichiometric air-fuel ratio (curve III between point A and E) and performing the fuel injection into the cylinder through a multi-stage injection and an early injection, by the catalyst activation control operation (lines 1-7 of column 4).

Re claims 3 and 8, in the modified system and method of Pott, the NOx occlusion reduction type catalyst comprises a reducer occluding substance (the NOx occlusion reduction type catalyst in Hirota et al. comprises zeolite as a reducer occluding substance (lines 1-4 of column 12)).

Re claims 4 and 9, the modified system and method of Pott comprise performing the catalyst activation control operation (portion between point A and E in Figure 3) to control the torque generated by the engine by controlling the intake air into the engine, while performing a burning control operation in the nearly stoichiometric air-fuel ratio (see curve III in Figure 3 and lines 1-7 of column 4).

Art Unit: 3748

Re claims 5 and 10, the modified system and method of Pott comprise performing the rich-burn control operation (portion between point E and F in Figure 3) to recirculate EGR gas to generate an exhaust gas which is in a fuel-rich state (see curve III between point E and F in Figure 3) and to control the torque generated by the engine by controlling the intake air into the engine (lines 17-25 of column 4).

***Prior Art***

6. The IDS (PTO-1449) filed on July 15, 2004 has been considered. An initialized copy is attached hereto.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of five patents: Yokota et al. (U.S. Patent 6,269,634), Ito et al. (U.S. Patent 6,378,297), Surnilla et al. (U.S. Patent 6,553,757), Takemura et al. (U.S. Patent 6,751,948), and Wachi et al. (U.S. Patent 6,763,657) further disclose a state of the art.

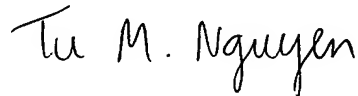
***Communication***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Tu Nguyen whose telephone number is (571) 272-4862.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Thomas E. Denion, can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Art Unit: 3748

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



TMN

Tu M. Nguyen

April 17, 2005

Primary Examiner

Art Unit 3748





DT15 Rec'd PCT/PTO : 15 JUL 2004

FORM PTO-1449

U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICE

ATTORNEY DOCKET NO.

953.1017

APPLICATION NO.

10/501405  
Not Yet  
Assigned

## LIST OF REFERENCES CITED BY APPLICANT

(Use several sheets if necessary)

FIRST NAMED INVENTOR

Masashi GABE et al.

FILING DATE

July 14, 2004

GROUP ART UNIT

Unknown 3748

## U.S. PATENT DOCUMENTS

*EXAMINER INITIAL		DOCUMENT NO.	DATE	NAME	CLASS	SUB- CLASS	FILING DATE
	AA						
	AB						
	AC						
	AD						
	AE						
	AF						

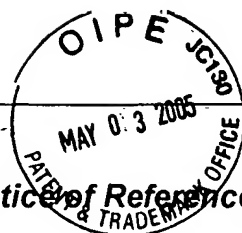
## FOREIGN PATENT DOCUMENTS

		DOCUMENT NO.	DATE	COUNTRY	CLASS	SUB- CLASS	TRANSLATION YES NO	
TMN	AG	2001-55950	2/27/01	JAPAN				X
	AH	6-317142	11/15/94	JAPAN				X
	AI	2000-130216	5/9/00	JAPAN				X
	AJ	2001-115829	4/24/01	JAPAN				X
V	AK	11-303660	11/2/99	JAPAN				X
	AL							

## OTHER REFERENCES (INCLUDING AUTHOR, TITLE, DATE, PERTINENT PAGES, ETC.)

			TRANSLATION YES NO
	AM		
	AN		
	AO		
EXAMINER	Tu M. Nguyen		DATE CONSIDERED 4/17/05
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.			

**Notice of References Cited**



Application/Control No.

10/501,405

Applicant(s)/Patent Under

Reexamination

GABE ET AL.

Examiner

Tu M. Nguyen

Art Unit

3748

Page 1 of 1

**U.S. PATENT DOCUMENTS**

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-6,164,064	12-2000	Pott, Ekkehard	60/277
	B	US-6,233,925	05-2001	Hirota et al.	60/285
	C	US-6,269,634	08-2001	Yokota et al.	60/286
	D	US-6,378,297	04-2002	Ito et al.	60/286
	E	US-6,553,757	04-2003	Surnilla et al.	60/285
	F	US-6,751,948	06-2004	Takemura et al.	60/285
	G	US-6,763,657	07-2004	Wachi et al.	60/285
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

**FOREIGN PATENT DOCUMENTS**

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

**NON-PATENT DOCUMENTS**

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

\*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)  
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.